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Rail-Road News.

Portsmouth and Concord Railroad.

The Stockholders of the abo ve named road at a special meeting in Portsmouth, N. H., on the 16th inst., authorized the Directors to dispose of the bonds recently issued to them for eighty-five cents on a dollar; for which one-fourth is to be paid down and the other three-fourths in three, six and nine months. The iron for the road has been contracted for, to be paid in bonds; and it was stated that, by a sale of all the bonds at the above rate, with the assessments due upon the stock, and which were deemed available, the road could be completed to Concord in a year. A committee was appointed to tender the bonds to the stockholders at the rate of 85 cents before offering them to the public.

Sackett's Harbor & Saratoga Railroad.

A meeting in favor of the new enterprise is to be held at Saratega Springs, N. Y., on the 13th of November. It will be remembered that this company was chartered by the Legislature in 1848. This road proposes to unite Lake Ontario with the Hudson River and the Hudson River Railroad. The company is now engaged in making a survey of the road and will be able to lay before the meeting in November next the profiles, maps, and reports of the route, when it is expected that the company will organize and at once open the subscription books.

Wheeling and the Railroads.

A large meeting at Wheeling, Va., on the 17th, appointed a committee to procure signatures to petitions praying the Councils to appoint an early day to take a vote of the citizens for and against a subscription not exceeding $300,000 to the stock of the Western Ohio Railroad. The Gazette says:

There seems to be no difference of opinion as to the importance of prompt action on this road, and the only question is at what time and on what terms and what amount shall be subscribed. Those interested in Ohio may be assured that Wheeling is in earnest and ready to do her duty, which will be shown on the day of voting.

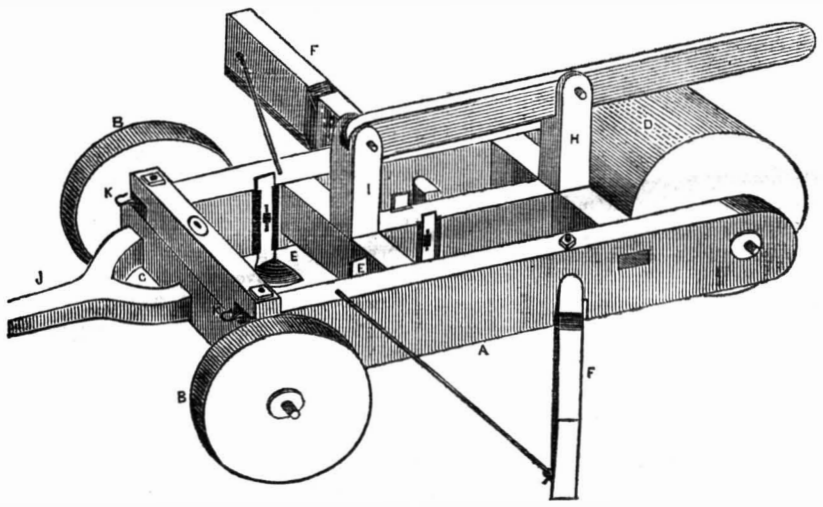
The Pacific.

This noble steamship arrived at her wharf on last Sunday, after a passage of 11 days and 2½ hours from Liverpool. She drove in some timbers of an English vessel when coming up the river. The Pacific has been particularly unfortunate that way, beth in going out and coming back.

Intelligence of the American Arctic Expedition, in search of Sir John Franklin, has been received, giving an account of them up to the 23rd August last. All were well.

A great explosion by powder, ignited by the voltaic battery, took place near Poughkeepsie, on the Hudson River Railroad, on the 18th instant.

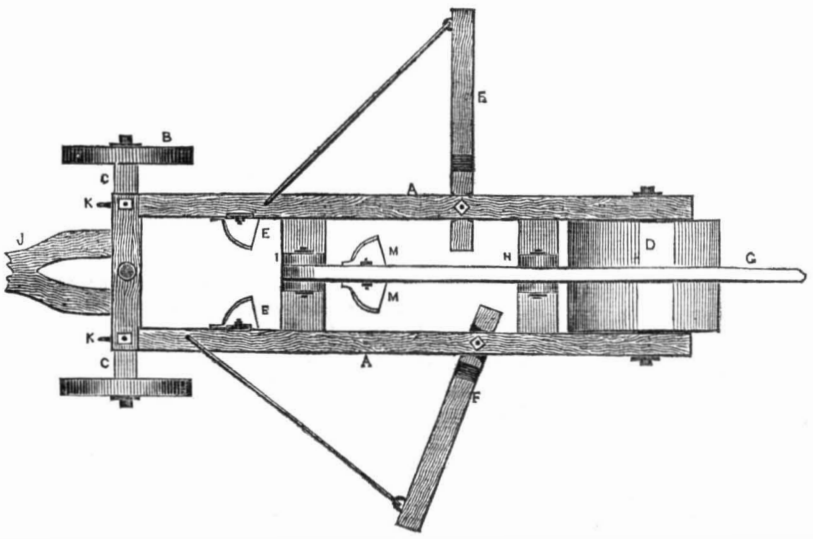
POTTER'S IMPROVED RUT SCRAPER.---Fig. 1.



This improvement is the invention of N. Potter, of East Hamburg, Erie Co., N. Y., and was secured to him by Patent, June 25th, 1850. Fig. 1 is a perspective view. Fig. 2 is a plan view. Fig. 3 is a section of a Rut Cutter, and a scraper with the outer end elevated—to be used on roads that have not been graded, and for clearing gutters at the sides of roads.

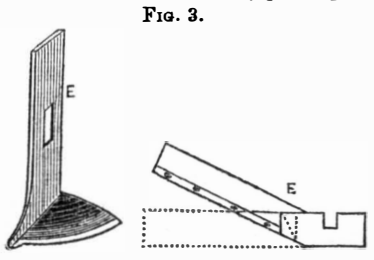
The same letters of reference indicate like parts. A A, are side pieces of the frame; B B are the front wheels; C is the axle; D is a heavy roller, which may be of iron or wood —it is provided with axes fitted in suitable bushes or bearings in the frame, A A. The cutters E E, are made of metal, the blades of which are formed nearly of quadrant shape, and are provided with vertical stocks, sliding in grooved plates on the inner sides of the longitudinal bars of the frame, and are attached by bolts which pass through the frame and through the slots in the vertical stocks of the cutter, and are secured by nuts—the said slots allowing the cutters to be adjusted to any required height. The cutter blades are nearly horizontal, the curved or cutting edges being inclined slightly downwards. F F are the scrapers for removing the loose dirt from the surface of the road, and may be formed of metal, but usually of planks set vertically on edge, and shod on their lower front or cutting edges with plates of iron or steel, and are attached to the frame A A, by vertical pins, on which they turn freely, so as to be adjusted at any required angle to the centre of the frame, and are kept in the required position by iron rods, which are attached to their front sides, and have their ends bent so as to catch

Figure 2.



in holes on the upper edges of the side pieces of the frame, by means of which the outer ends of the scrapers may be both thrown forward, or one forward and the other back, according to the direction dirt is required. G is the pressure bar or lever attached by pins to posts,

FIG. 3.



H and I, on the frame. J is the tongue or pole attached to the leading axle, C. M M are two additional cutters attached to the sides of a longitudinal centre piece below the lever, G, set in a reversed position from the front cutters, and may be used or omitted at the discretion of the operator, but will generally be found necessary in clearing gutters at the sides of roads.

For filling ruts the operation is as follows:—The horses or other drawing power being attached and set in motion, and the machine brought with its centre over a rut in the road, the cutters, E E, will cut off the ridges on each side of the rut, throwing the dirt from the ridges into the hollow of the rut—the scrapers, F F, conducting the dirt either into or towards the rut, or towards the centre of the road, as may be required. The roller, D, will pass over the loose dirt which has been thrown into the rut, making it firm and solid. This improved scraper will also be found very useful in levelling and smoothing newly-made turnpikes, as well as filling ruts, raising the road gradually to the centre, and will be found a valuable labor-saving machine in making and repairing roads in general.

Joseph A. Dugdale, Selma, Clark Co., O., is agent for Pennsylvania and Ohio. Alanson Palmer, Buffalo City is authorized to sell machines, and the right to use them in Western New York. For rights in general, apply to the patentee, Nathaniel Potter, East Hamburg, Erie Co. N. Y.

To Make the Nitrate of Silver.

Place pieces of silver in a glass vessel, and pour on them about equal parts of water and strong nitric acid; the metal will soon dissolve, giving off fumes of nitric oxide. Should the solution have a green hue, which is invariably the case, unless the metal has been obtained fine from the refiners, it indicates the presence of copper; in which case immerse some pieces of copper in the solution, and the nitric acid, by elective affinity, will combine with the copper; and a precipitate of pure silver, in the form of a greyish powder, will take place. Throw away the liquid, and wash the silver precipitate several times in sulphuric acid and water, and afterwards in water alone. Then re-dissolve it, as before, in nitric acid and water; and a solution of pure nitrate of silver will be obtained. Place this in an evaporating dish or a saucer, and apply the heat of a spirit-lamp, or place the saucer by the fire-side, till some portion of the liquid is driven off in vapor. Allow the residue to cool, and it will shoot out into long colorless transparent crystals, which are nitrate of silver. They must be handled with care, as they possess the property of staining animal and vegetable substances with an almost indelible black; fused nitrate of silver being the lunar caustic of surgery, and the main ingredient of marking.

Iron Steamers.

A new invention by a Mr. Jordan, of Liverpool, by which he proposes to substitute iron for the wooden framing of vessels, is attracting a good deal of attention in that city. The inventor has taken out an American patent. It is stated that the Government has in contemplation the construction of a powerful squadron of steamers for the African Coast, with the view of employing them to carry a monthly mail and to act upon the slave prevention service. It is proposed that the fleet shall consist of 40 vessels, and that one shall be detached from the stations along the coast monthly, to come home and return with the mails, thus establishing a regular monthly communication with the African coast, and effectually crushing the slave traffic.

[The above framing of Mr. Jordan may be peculiar, but so far as iron ribs of ships may be considered as his invention, we find on page 84, Vol. 3, Sci. Am., that Mr. Richard F. Loper, of Philadelphia, employed hollow iron ribs in 1847, and solid ribs were used many years before that. The hollow iron rib, we should think is a good invention, but since we published a notice of it (as mentioned) we have heard no more about it.

A New Varnish Wanted.

A subscriber writes us that he saw some Talbotypes at the Exhibition of the Franklin Institute, Philadelphia, which were covered with an enamel varnish, the most beautiful that he ever saw, but he could not purchase any except at an enormous expense. He wonders if, among the great number of ingenious men who are subscribers to the Scientific American, as good a varnish cannot be discovered and published for the benefit of the community. Probably the varnish seen by our correspondent, was of albumen and honey.

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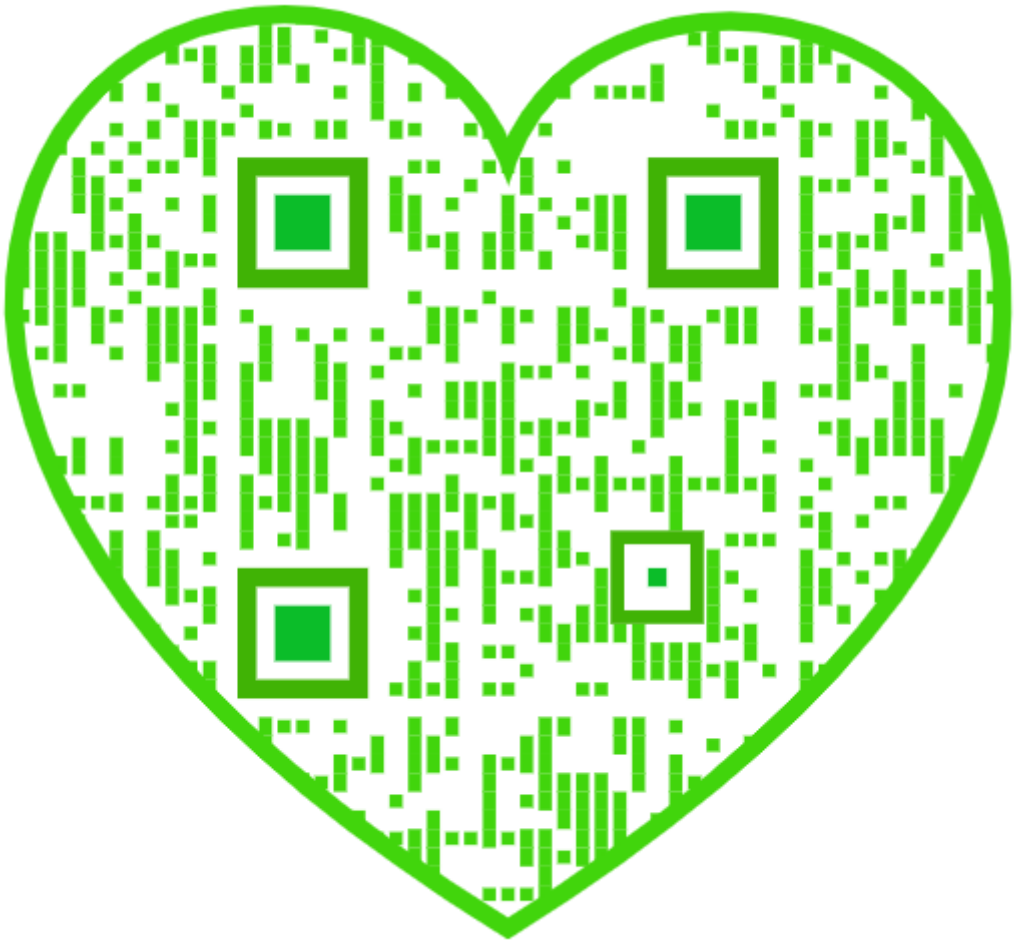

Miscellaneous.

Fair of the American Institute.

The Fair closed on last Wednesday evening, the 23rd inst. The following is a list of the gold medals awarded. The list of premiums in gold and silver medals is very large; we do not know whether we will be able to publish all the prizes awarded or not—we will think about it.

Gold Medal Prizes.—Watervliet Mills, West Troy, N. Y.—for the best Black Broadcloth.

Wethered & Brothers, Baltimore, Md.—for the best Plain Cassimeres.

Rochdale Mills, Rochdale, N. Y.—for the best Blankets.

Burlington Mills, Burlington, Vt.—for the best Fancy Cassimeres.

Cohoes Worsted Company, Cohoes Falls, N. Y.—for Worsted Yarn.

B. S. Walcutt, New York Mills,—for the best Bleached Shirtings.

A. W. Sprague, Providence, R. I.—for the best Madder Prints.

H. H. Stephens, Webster, Mass.—for Linen Diaper and Crash.

C. E. Bennett, Portsmouth, N. H.—for superior six-cord Spool Cotton.

A. Fisher, Lansingburg, Pa.—for Patent Linen Thread.

John N. Genin, New York—for best Fancy Furs and Sleigh-Robes.

James Millward, New York—for excellent Silk Shawls.

A. & E. S. Higgins, New York—for best Brussels and Velvet Tapestry Carpets

Bigelow Carpet Co., Clinton, Mass.—for the best Brussels Carpet.

Allcock & Allen, New York—for best Lamps, Chandeliers and Girandoles.

Archer & Warner, Philadelphia—for design and workmanship of chandeliers.

Union India-Rubber Company, New York—for best display of India-Rubber goods.

Palmer, Currier & Hudson, Springfield Mass.—for best Artificial Leg.

J. R. Benjamin, New York—for the best Spring-Truss.

Andrew Meneely, Troy, N. Y.—for a peal of 9 Bells.

Spencer, Rendell & Dixon, New York—for superior Gold-Pens.

Brooklyn Flint-Glass Co., Brooklyn, N.Y.—for best specimen of Cut, Plain and Colored Glass.

William Oppitz, New York—for best specimen of Engraving on Glass.

Woram & Haughwout, New York—for painting on China.

Samuel Colt, New York—for the best Revolving Pistols.

S. B. Amony, Goshen, N. Y.—for the best Rifle.

W. & N. Jackson, New York—for superior Grates.

Allcock & Allen, New York—for superior Silver Ware.

Waterville Manufacturing Company, Waterbury, Conn.—for best Pen and Pocket Culery.

Lamson, Goodnow & Co. Shelburn Falls Mass.—for best Table Cutlery.

Jordan L. Mott, New-York—for best Kitchen-Range.

Alex. Young, New York—for Terra Cotta Ware.

Charles Starr, New York—for a machine for stamping Backs of Books.

Chilson, Allen, Walker & Co., New York—for the best Hot-Air Furnace.

Charles E. Jacot, New York—for an improved Duplex Escapement Clock.

D. Simmons & Co., New York—for elegant specimens of Axes, Hatchets &c.

Senee & Flagella, New York—for Marble Mantel and Composition Moulding.

J. W. Dufrene, Philadelphia—for Composition Marble Mantels.

John Gilbraith, Wisconsin—for superior Flax, sample of 96 acres.

Allcock & Allen, New York—for elegant Tea-sets, &c., plated on Albata Ware.

Blanding & Avery, Columbia, S. C.—for the best spicimen of Artificial Teeth.

Hudson Manufacturing Company, New York—for Gutta Percha Pipes, Picture Frames and Pressed Articles.

Mott & Ayres, Chelsea Iron Works, New York—for superior Iron Bolts.

J. Craven, New York—for best set of Double Harness.

J. & R. Lowden, New York—for best set of Single Harness.

W. H. Jemmison, New York—for best method of Ventillating steam and sailing vessels.

Ransom Cook, Saratoga Springs—for best method of Ventillating Buildings.

Ebenezer Knight, New York—for a Plan for Ventillation of the spaces between Timbers and Planks of a vessel, in order to prolong their duration.

Arrowsmith & Co., New York—for Outside Door-Locks and other Locks and Latches.

Argilla Works, Albany—for Argilla Door and Furnature Knobs.

C. Cartledge & Co., Green Point, L. I.—for Porcelain Door Knobs.

Arrowsmith & Co. New York—for the best Bank-Lock.

Robert Kittle, Dansville, N. Y.—for best combined Revolving and Stationary Cutter Wood-Planing Machine.

N. G. Norcross, Lowell, Mass.—for best Revolving Cutter Planing Machine.

Joseph P. Woodbury, Boston Mass.—for best Stationary Cutter Wood-Planing Machine.

E. G. Allen, Boston, Mass.—for a superior Stationary Wood-Planing Machine.

Stillman, Allen & Co., Novelty Works, Dry Dock—For the Engines of the steamer Florida.

D. Griffin, cor. John-st. and Broadway—for a mode of heating Air to be used in large Manufacturing Establishments.

John Mayher & Co., New York—for the largest collection of Agricultural Implements.

A. B. Allen & Co., New York—for a large and choice collection of Agricultural Implements.

Edward Harrison, New Haven—for best Portable Mills.

Samuel Hawkins, East Boston, Mass.—for best speeimens of Iron.

Fisher & Morris, Trenton, N. J.—for the best Anvils.

F. J. Austin, New York—for best Embossing Press.

J. W. Cochrane, New York—for a machine for sawing Ship Timber.

American Chair Co., Troy, N.Y.—for Patent Spring Chairs and Piano Stools.

William Burdon, Brooklyn, L. I.—for a Steam Engine of 20 horse power.

Lowell Machine Shop Co., Lowell, Mass.—for a Spinning Frame.

Rees & Hoyt, New York—for very superior Machine Belting.

E. & T. Fairbank's & Co., St. Johnsbury, Vt.—for 33 feet Railroad Scales.

James Benton, Newark, N. J.—for a Model of Furnace for making Wrought Iron direct from Ore with anthracite coal.

Slaughter & Perry, Fredericksburg, Va.—for a Rope Cordage Machine.

J. B. & C. F. Blakeslee, Newton, Conn.—for a Wool Carding Machine.

Robert Eastman, Concord N. Y.—for a Stone Planing and Grooving Machine.

Wm. Trapp, Jr., Ithaca, N.Y.—for a Patent Barrel Machine.

H. Griffen, New York—for a fuel Saving Apparatus.

George Faber, Canton, Ohio—for Magnetic Water Guages.

David Dick, Meadville, Pa.—for an Anti-Friction Boiler Plate Shears and Punch.

Talbotypes.—Messrs. Langenheim, formerly of Philadelphia, but now of New York, exhibited the finest specimens of talbotype pictures that we ever saw; we could not but say, when we first saw them, "can art ever attain to greater perfection?"

System of Ventilization.—It will be observed that a gold medal was granted to Mr. Ransom Cook, of Saratoga, N. Y. The system of Mr. Cook is illustrated and described in the Mechanics' Mirror for 1846, and was applied by him, during that winter, to the Clinton County State Prison, and it worked admirably. He gives it free to the public; all the information about it is in our possession.

Improved Portfolio.—A beautiful portfolio, upon a new principle of action, was exhibited by the inventor, Mr. James Shaw, of Providence, R. I. It is for keeping sheets of music, letters, drawings, &c. It is a very neat apparatus for draughtsmen. A diploma was awarded.

Gear Cutting Engine.—Messrs. E. & L. D. Gould, of Newark, N. J., exhibited a most beautiful Gear Cutting Engine. We venture to say, from their sample of work, that Messrs. Gould are among the first rate mechanicians of our country.

We will have some future remarks to make about the distribution of prizes, &c.

The Cigar Destroyer.

M. Guerin Meanville, the Spanish entomologist, so celebrated for his discoveries, has just found out a new destructive agent which has appeared among the cigars in the national manufactory. Everybody has noticed cigars with holes in them, which the smoker cannot use, because of the air not drawing through the whole length. In 1847, M. Guerin Meanville received from M. Planche, director of the tobacco factory, a small packet of dry cigars, eaten into holes, with a certain number of insects, found in these cigars and in other tobacco. One insect alone was alive. Some of these insects were common to all countries; but some, he could tell at once, were from peculiar localities. No cigar smoker, however experienced, could have told the precise tobacco of which the cigars were made, but M. Guerin could at once state that the cigars came from North America and Cuba. In some he found the xyletine serricorne, a little insect common to Louisiana; in the others he found the body of a longicorne, the elaphidion arrose peculiar to Cuba, and some blattes, or kakerlacs, as well as a scorpion, also peculiar to the island of Cuba. In another Havana cigar he found a new insect which, like the xyletine, belongs to the family of the terediles of Latreille, a family of insects accustomed to make holes in wood. M. Guerin has named him the *catorama du tabac*, from two Greek words signifying to see below. Smokers have not complained of any injurious effects from these animals, and yet they are poisonous in a similar way with the cantharides. But the fire purifies all this. M. Guerin is now engaged in examining whether some means may not be found of destroying them, or of preventing their eating into cigars, of which they destroy a large number in the course of a year, to the great loss of the administration.

Will some of the readers of the Scientific American be so kind as to answer through that paper the following questions:

1st—Is calomel composed of one atom of chlorine and one atom of mercury?

2nd—Is corrosive sublimate a poison composed of two atoms of chlorine and one atom of mercury?

3rd—Do doses or parts of doses of calomel with an acid, ever change to a corrosive sublimate?

4th—When a dose or doses of calomel are given, in flux or other diseases, and meet with an acid in the stomach, is there not danger of corrosive sublimate being formed thereby and causing death?

5th—If, after a man has taken one dose of calomel the one atom of mercury therein should "pass of," leaving the one atom of chlorine in the stomach, he should then take another dose of calomel, would his stomach then contain two atoms of chlorine and one atom of mercury, which are the proportions of the articles composing corrosive sublimate, which is one of the most deadly poisons?

Merchant Kelly.

Bentonville, Ind., Oct., 1848.

We will answer our correspondent:—Calomel is not composed of 1 atom of chlorine and 1 of mercury; it is composed of Hg. 2, Cl. (2 of mercury and 1 of chlorine); corrosive sublimate is composed of 1 mercury, 1 chlorine.

This answer fulfils all the five interrogations, as they are based on the first, regarding which he has been in error. We will, however, remove all doubts about the danger arising from the use of calomel, as turning into corrosive sublimate, and thereby answer his 3rd, 4th and 5th questions:—It would be impossible for calomel to turn into corrosive sublimate by an excess of any acid on the stomach, but chlorine, and not with that, because vegetable extracts in the stomach decompose corrosive sublimate and deposit calomel—the phenomena is never, so far as we have been able to learn, the other way, viz., from calomel to corrosive sublimate. It is the disengagement of the chlorine in corrosive sublimate which is the cause of its virulency on the human system, not the disengagement of the mercury. The antidotes for corrosive sublimate are first a small dose of dissolved soda, and then the white of eggs, or dissolved glue.

[Ed.

For the Scientific American.

Every Farmer his own Miller.

This morning I found a note on my table to wit:—"You are respectfully invited to attend at Prime & Colstock's sash factory, at 10 A. M., to-day, to witness the operation of Clark's Patent Combined Flouring Mill. I did attend, and the observations of my attendance are here placed at your service.

The mill occupies a space of 4 feet square by 5 feet high, boxed in; the grinding, separating and screening are all worked by one perpendicular shaft. The lower stone revolves and has no gutters on its face or grinding surface. The flour is thrown out by centrifugal force, and is brushed through a wire-gauze screen; this extracts all the glutinous and farinaceous matter from the wheat, while it leaves the bran clean and coarse. On timing it I found it ground at the rate of 4 bushels per hour, (Mr. Clark says it can grind 5 bushels per hour;) I would call the flour extra superfine; I judge from the feeling and appearance of it, but more particularly from eating some of it, baked into bread: it tastes equal to the best Rochester superfine. That it turns out the fullest ratio of flour to wheat, I am satisfied from the cleanness of the bran. Although I cannot comprehensively describe the minutiæ of the bolting (screening) operation, I am prepared to say it is done by an ingenious but truly scientific process. Every one who witnessed its work to-day was astonished at its perfect success, and I think Mr. Clark himself was. The mill is portable, it can be hauled on a one-horse wagon, and I am informed can be furnished for $200. If, as Mr. Clark tells me, it is easily kept in good going order, it will certainly be a great acquisition to the farmer's convenience and independence, if it does not entirely revolutionize the old method of flour-making. Mr. Clark contends that the farina and gluten should come from the mill separately, which is the case in this mill, as the two substances are very different in their consistency.

I deem it unnecessary to say more about it now, as Mr. Clark will shortly have it fully illustrated by engravings and a description, when it will be more fully understood.

John Wise.

Lancaster City, Pa. Oct. 22, 1850.

Europe.

By the late news from Europe, we learn that Louis Napoleon is in great favor with the army, but not the Assembly. The Queen of the Belgians is dead; she was a daughter of Louis Philippe; her husband is Leopold, once husband to an expected heiress to the British throne. The Holsteiners and Danes had some little fighting—the old Danes seemingly came off first best, the Holsteiners second. The Pope and the Sardinian powers were still at loggerheads. The cotton market was unchanged, but the provision market was improving. It is a fact, that flour is cheaper in the principal cities of Britain, at present, than in New York city. The rest of the news is but of little consequence.

We never remember of a season when there were so many freshets. By late accounts from central New York the creeks have all overflowed, and great damage has been done.

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For the Scientific American.

The Voltaic Battery.---Precipitation of Metals.

NUMBER V.

Having now unfolded the nature of the battery and determined what is requisite for its operation, we will consider its application to the precipitation of the metals in which it is the grand prime mover, but blind and dumb it is altogether a tool in the hands of the workman; therefore let him not depend on the battery to do the work; he must be capable of generating and controlling the voltaic force at pleasure, or, otherwise, failure will be his reward; and unless those conditions on which the voltaic action depend are comprehended by the workman, he cannot maintain and control those conditions: in short, he cannot use the battery. Blind receipts are of no avail here; a battery may be obtained from the instrument maker, and chemicals of the utmost purity; after arranging everything according to the directions, a satisfactory result may not be obtained, or if obtained at first, difficulties will soon crowd on and perplex the operator until he abandons his experiments that he may recompose his mind. Let those general principles which have been pointed out, be fully comprehended, and the battery will copy the most delicate work of the sculptor; or, like the long-sought philosopher's stone, transmute the base metals into silver and gold.

The branch of electro metallurgy which we will first treat of, will be Electro Gilding, as this is the most extensively practiced and the easiest of execution.

Among the articles to be gilded, watches and the plate work of dentists will be most important, as they require a firm and durable coating of gold. We will now describe the process and arrangements for gilding a silver watch-case, silver being more easily gilded than the base metals.

First of all a suitable battery must be obtained, and as some persons may desire to practice gilding who are far removed from the store of the instrument maker, I will describe a battery which experience has shown to be the cheapest and easiest to construct and manage, and the most effective and certain of any form yet devised for small operations. And it is greatly to be regretted that it does not answer for such purposes as require many pounds of metal to be precipitated in the course of a day.

Four cups or batteries, of the form now to be described, may be made, for it must be known that different salts require very different intensities for their decomposition. The sulphate of copper will yield to a single battery; the cyanide of silver will require two batteries joined consecutively; the cyanide of gold, three; the cyanide of copper, four. Get four ordinary tumblers, and 8 plates of zinc, 1 inch wide, and in length 1 inch less than the depth of the tumbler, and four pieces of silver plate or foil, two inches wide, and of the same length as the zinc; a bar of hard wood about three-quarters of an inch square, and one inch longer than the diameter of the glass, is to be fitted to each vessel by sawing a notch at such a distance from each end that the rim of the glass may go in the notches when the bar is laid across. The zincs are to be well amalgamated, and two placed in each vessel at opposite sides, and secured in their place by putting a small lump of beeswax, mixed with a little oil, between the zinc plate and the side of the glass, and then pressing the plate down hard on the wax. Each silver plate must have a copper wire soldered to one end, and then well roughened with sand paper. Across the middle of each bar a notch must be sawed, and a hole made by the side of the notch, so that when the copper wire soldered to the plate is drawn up through the hole, the plate may enter into the notch, where it must be well cemented with beeswax, and the entire wire covered with wax, except a little piece at the end; it is important that the wax should prevent the acid and its fumes from penetrating to the soldered joint. At about an inch from the silver plate there should be made another hole through which a wire should pass quite to the bottom of the glass, and this wire, also, must be well secured in its place and covered throughout its entire length except about an eighth of an inch at each end. Into each glass sulphuret of mercury must be poured to bring the zinc plates and the wire in metallic conjunction, when the tumbler may be charged with acid and water. The wire of the first silver or zinc must be connected to the zinc or silver of the next, and so on; this will be easily effected by placing the four batteries on a board and boring five small holes in it by the side of the glasses, so as to form a row of little wooden cups, which, being filled with mercury, the wire from a silver of one and zinc of the next, are made to dip into the cup. This arrangement admits of a part of the battery being used without disturbing the remainder, and most effectively obviates the great liability of non-contact, to which brass binding screws are often indebted for bothering the amateur for whole days.

The battery as now constructed will answer for gilding an object as large as a watch; but as a greater power may be required, it must be platinized, by which it will be increased ten-fold.

Get two more tumblers, fill one with acid water and the other with a strong solution of common salt; let the tumblers be placed side by side, and connect the fluids by five or six folds of lamp wick; dissolve the grains of platinum in nitro-muriatic acid, and add it to the salt water, then taking one of the bars with its silver plate, lay it on the glass, so that its silver may be in the salt water, but the wire which runs to the mercury and zinc out of the fluid, then using the remaining three batteries as one, let the silver to be platinized be placed in connection with the zinc end of the battery, and a piece of copper put into the tumbler containing the acid water, and in connection with the silver end of the battery. As soon as the connections are all complete, the voltaic force will traverse from one tumbler to the other, by way of the wet lamp wick, and in a few minutes the silver plate will look as if it had been held over a smoky lamp; it is now done, and may be put in place of another silver while it is being platinized. The platinization executed by this method is much more durable than that by the method practised by Mr. Smee, and possesses greater economy and simplicity for porous diaphrams are not to be had every where. The battery described above is not liable to local action, for the flood of mercury in the bottom of the tumbler keeps the zincs well amalgamated, and as it will suffer no loss when not in action, it is not necessary to derange the affair and empty out the acid after using it, as with all other batteries, but it may be set aside in order when wanted again. The only fault which attends this instrument is, that when in vigorous operation and the solution nearly saturated, the sulphate of zinc is apt to crystalize around the wire leading to the mercury and insulate it from contact with the mercury, and stop the action, but this defect is easily obviated by occasionally stirring the solution. But even the liability to this defect is entirely obviated by making the containing vessel very deep, and forming a trough near the top to hold the mercury and zinc, the sulphate subsides to the bottom and crystalizes, this forms the reservoir battery, which will maintain its action while there is a particle of acid and zinc left. I have had such a battery to continue in use for fourteen months without replenishing and to form twelve pounds of crystals of sulphate of zinc at the bottom.

VOLTA.

Patent Cases.

At the late U. S. Circuit Court for the District of New Jersey, at Trenton, on the 5th ult., Judge Grier presiding, another case besides that of Goodyear, vs. Day, noticed on page 30, No. 4, was decided. It was the case of a patent for an improved corn sheller, granted to Francis N. Smith, June 1st, 1843, the right to the use of which in New Jersey, was transferred to Samuel Hanna, the plaintiff in this action, against Wm. Reading for an alleged infringement of the patent. Witnesses testified that the machine was of great utility to agriculturists, shelling with suitable horse power, 1000 bushels of corn per day.

The defendant denied that Smith was the first inventor of the machine; alleging that the invention had been familiar to many persons long before his construction of the one in question; and he insisted that the one constructed and sold by Smith was entirely unlike the one he claimed interest in. On the part of the defence, witness testified that James Gray, of Flemington, had built and put in operation a similar one 25 years ago; a similar one was put in operation also by Calvin Page, in March 1834; another by Lester E. Dennison in 1838; notice was also given of several others, but no proof was adduced of the fact. Letters patent had been granted to all the persons above named. The plaintiff produced a number of witnesses to prove that the corn shellers referred to by defendant's witnesses, were wholly unlike the one patented by plaintiff and on which he now declared; and that the corn shellers made by the defendant were substantially the same as those made by the plaintiff, and his agent, Hiram Deats.

In this case a bill had been filed in the Court of Chancery by the plaintiff against the defendant, and an order of that Court made that the defendant should keep an account of all the machines made by him, and file the same under oath, to abide the decision of the present suit.

Judge Grier charged that it was the province of the Court to instruct the jury as to the principles of law; and it was their province to decide upon questions of fact, under instructions of the Court. The Court was of opinion the defendant had made out no defence either in law or in fact, but of the facts they were to judge. He reviewed the patent, and declared it to be a valid one, so far as it appeared from its face; and that it was *prima facie* evidence of the originality of the invention by the patentee, and the invention was sufficiently described. As to principles applicable to machines and machinery, the judge referred to some of the machines to which the attention of the jury had been called by the defendant, and pointed out the differences in principle from the plaintiff's machine.

If the jury should find that the defendant's were substantially the same as the machine of the plaintiff, it was clearly an infringement. Mere colorable differences, nor any improvement made by the defendant would avail him in his action. The jury found for the plaintiff.

This machine was illustrated and described on page 5 "Mechanics Journal," a paper printed for some time at the office of the Scientific American.

The Principle of Morse's Patent, &c.

MATTEAWAN, Oct. 19, 1850.

We would be much pleased if you can give us any information by which we can reconcile Judge Woodbury's decision respecting Morse's claim to the art of telegraphing. The judge says, "the patent of Morse extends to the mode and not to the principles of telegraphing."

The identity of lightning with electricity, though it had been previously suspected, was first directly demonstrated by Dr. Franklin. It was also known that there was a difference in the conducting power in different substances, but Franklin first made use of metallic rods for protecting buildings from the destructing effects of lightning. Now it appears to us that this was a mode of protecting a building and it was also patentable and hence Franklin would have had the exclusive right to his mode until the patent expired. It will be readily seen that Franklin would have patented a "medium" only. The different kinds of water wheels and steam engines are but different mediums of transmitting power, these are all patentable, hence it cannot but be acknowledged that the application of a medium for any particular purpose is patentable.

The art of telegraphing information by signs has been practiced from the earliest ages, and it is a remarkable fact that the art received no improvement till almost the present time. Hooke's plan of telegraphing (about the year 1680) was by occult signs or signals, so also was Amonton's, Chappe's, Murray's, Pasley's and Popham's;—the art remained in this state until Morse discovered a way of transmitting ideas by means of symbols, signs or characters. Now, we are under the impression that Morse has the same right to patent the application of the medium (or wire) for transmitting symbols, &c., as the inventor of the water wheel has to his wheel for transmitting power of a water site; and the engineer for his engine, and, indeed, for all similar causes. This, therefore, establishes the fact in our mind that Morse has the exclusive right of using a metallic wire for transmitting ideas by symbols, &c. You will, perhaps be able to show us that we are in error in some of our assumed positions respecting the use of the wire.

Distinction between "mode" and "principles:"—The use of steam as a motive power is alike free to all, but the different machines used in transmitting this power are *modes*, therefore they are patentable: the use of steam has never been patented. We never hear of Hero's, De Caus', Worcester's, Newcommen's or Watt's steam, but we hear of their engines, this, therefore, is a principle, and the different engines are the mediums through which it is transmitted. Watt's improved mode was the only engine (of any account) that was used for many years in Great Britain, because it happened to be the only mode of transmitting the power of steam,—precisely similar to Morse's case—that is, there is no other medium but the metallic wire that will transmit ideas by symbols, &c. When Watt's patent expired, all the various improvements from that time to this have been patented and applied to the engine. It must be borne in mind that all the points Watt's patented remained public property, as the government had literally purchased them from him. Now, we consider Morse's wire occupies the same position that Watt's engine did; if any one patented an improvement on Watt's engine, they could use it by first paying Watt for the use of his patent; hence we consider if any one has an improved mode of making a symbol, he can use it by paying Morse for the use of his patent, that is, the wire. Watt was protected by the government in the exclusive right of his patent until his long extended rights expired.

Electricity is classed with steam as a principle, therefore it can be used freely by all. We cannot see that Morse has any occasion to patent the use of electricity for telegraphing purposes, we never hear of Morse's electricity, or magnetism and no magnetism, but we hear of Morse's telegraph wires and machine. It appears to us that until a second party can discover some other medium through which to transmit ideas by symbols, &c., Morse should be protected in his rights. C. E. L.

[If Prof. Morse had been the first who employed metallic wires as conductors of electricity, to communicate messages either by signals or permanent marks, then he would effectually have prevented both House and Bain from using their telegraphs. A metallic wire of 4,000 feet in length was used by M. Monnier, in 1746, to discharge a Leyden vial, in order to discover the velocity of electricity; and Watson, in 1747, used a metallic wire, and part of the ground as a circuit, and upon one occasion, the width of the river Thames made part of the electric circuit,—the circuit of wire used by the Doctor was two miles long. Franklin ignited alcohol by an electric spark sent from one side to the other of the Schuylkill river. In 1816, Mr. Ronalds of Hammersmith, England, constructed an electric telegraph with a single circuit of wire 8 miles long, which he worked in the presence of several scientific men. He published a description of it in 1823. Until Oersted, in 1820, discovered the principle of the electro magnet, no good telegraph was invented; it is upon his discovery that Prof. Morse has so ingeniously built. Prof. Morse's invention "consists in using the attractive power of the electro magnet to write legible characters." The quotation is Professor Morse's own language. Our modern inventors are certainly much indebted to Ampere, Davy, and a number of others whom we might name.

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New Inventions.

Improved Stove.

Mr. James Cole, of this city, has invented an improved coal and coke stove, which promises to be one of the most useful inventions of the present age, because it promises to reduce the amount of fuel necessary in stoves of present construction greatly. The reduction can only be ascertained by actual experiments. But that it is a great improvement is evident to every one who has examined it in the Mechanics' Institute. In the first place, the coal is converted into coke by a slow and regular process of combustion, which expels the peculiar gases of the coal. This process lasts some forty-eight hours, when the mass is converted into coke, when, by opening a flue and letting into the stove atmospheric air, the coke burns nearly as long as the coal, thus keeping up a regular heat some eighty hours or more. That it is a most important invention appears to be conceded by those who visited the Mechanics' Institute Fair, and admirably adapted to the use of steamboats as well as to warming rooms and churches. The discovery is one which should attract the attention of the scientific as well as the economist.

[The above is from the Cincinnati Commercial; it is not adapted for burning the kind of coal we use in New York, at least it is of no earthly use for such a purpose above our common kind, but for the western bituminous coal we believe it is a good improvement, and all that is required in addition to make it a cooking and gas producing stove, is simply to attach by a pipe the coke oven to a purifyer and a gasometer.

Improved Plow.

At the recent meeting of the Hampshire Agricultural Society, Narthampton, Mass., a plowing match took place with plows so constructed as not to require being held and guided by hand as heretofore. The plows were thoroughly tested in soil suited to a rigorous test, and the committee, three old farmers, decided in favor of the plow without the stilts. The committee stated that the work appointed to be done was executed in the most admirable manner, fully equal, if not superior to any hand-held plowing: they further stated that the plows were not touched by any one from the time they were started until they reached the end of the furrow. The great question is, will this plow do for rough land, stones and stumps? If not, then there is but little gained for a clean field. Perhaps the new plow may enable a boy to do as good work as a man by the old plow. In that case, the invention must be of vast importance to the farmer.

Improved Grate.

Mr. A. D. Spoor, of Troy, N. Y., has invented and taken measures to secure a patent for an improvement in grates, which is applicable to stationary and locomotive engines, also stoves and furnaces. It consists in having a stationary or fixed grate, cast in one or more pieces, with the bars placed a little further apart than in common grates, and combined with this there are a number of moveable grate bars united together by joints to axes underneath, which allow, by a lever, the said bars to lie on a line with the fixed bars, to move vertically between and above the fixed bars or fire box bottom, and to be elevated and depressed angularly at both ends.

This improvement in grates allows the burning of very fine coal, answers the purpose of a poker or clearer to remove all scales and caking of the coals, and by having square shoulders on the moveable bars, they can be projected upwards to make the shoulders set snug to the bottom of the fixed bars, thus answering the purpose of a damper also.

Improvements on Harvesting Machines.

Mr. Homer Adkins, of Plymouth, Hancock Co., Illinois, for whom we had the pleasure last year of securing a patent for improvements on Harvesters, has made another most excellent improvement in the same machine, for which he has taken measures to secure a patent, and which cannot fail to be of immense benefit to farmers, especially those who have large farms in our Southern and Western States. In his first patent the actuating power was communicated from the main wheel to the cutting blades, to cut almost like scissors in a very simple manner, in this case no addition has been made to that; the improvement is a combination of machinery, whereby the grain cut is carried into the machine, laid upon a platform, and then delivered by a rake driven by the main wheel in parcels or bunches, at regular intervals, on the ground for binding. Thus there may be 24 or as many bandsmen as are required, all working away while on the ground, and none but a boy driving the machine. This is a great improvement over those machines in which the grain is banded in them, as the machine in this case is drawn with the lightest possible load.

IMPROVED PORTABLE BATH.

Figure 1.

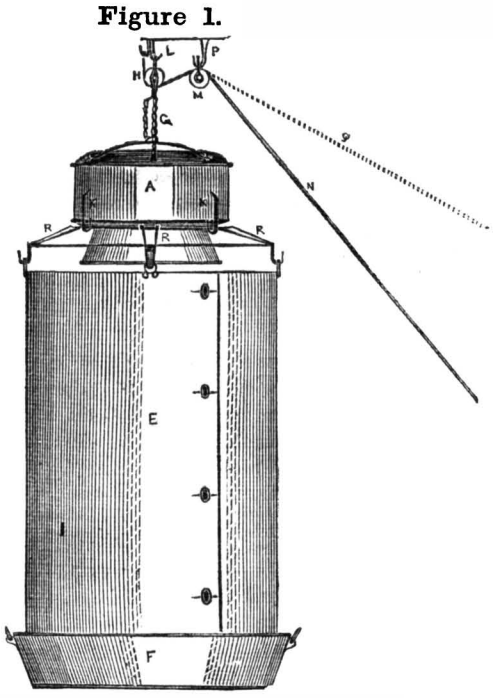
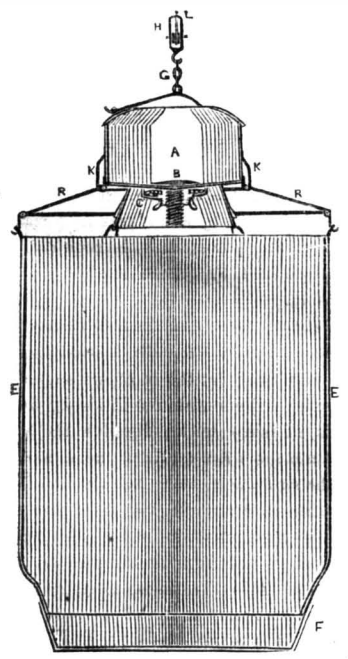


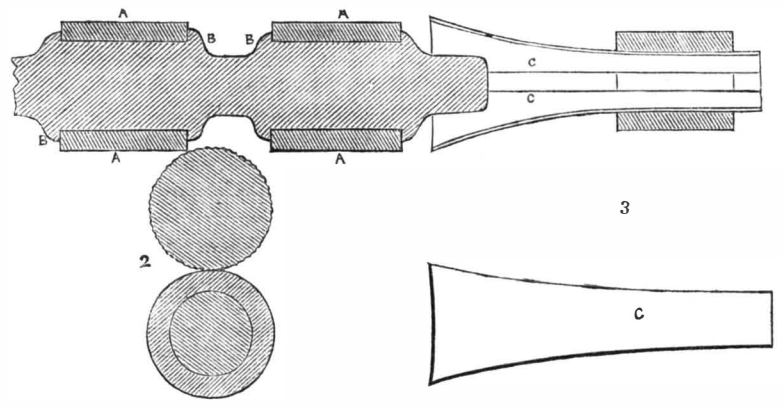
Figure 2.



This apparatus, as improved, is the invention of Mr. Wm. H. Brown, of Worcester, Mass., who has taken measures to secure the same by patent.

Figure 1 is a side elevation, and figure 2 is a vertical section. The same letters refer to like parts. A is the metal water reservoir or pan; B is a valve at the bottom of it—it can be made of sheet india rubber placed between metal discs. Under the valve are perforations for the water to pass or shower down when the valve is raised. The valve is worked by a screw, as represented, and it can easily be turned by hand. C is the strainer with its perforated bottom; it is attached by a screw to the reservoir. A frame supports the water pan, and protects the strainer and valve from injury. R R are arms of a wire frame, one end of each arm laps round, forming hooks to suspend the curtain, E; this curtain may be made of any cloth most suitable; it opens and is closed by buttons, or in any other manner most convenient. The arms, K K, hook over the rods, R R. On the top of the reservoir are arms by which the whole bath is suspended in a very simple manner; G is a chain fastened to the arms on the top of the pan, A, and it forms a loop, H, embracing a pulley; a cord, N, from the top of the said pulley passes over the double hook, L, and over the pulley, M. The double hook, L, and the hook, P, are fastened to the ceiling or any convenient part of a chamber. The cord, N, it will easily be perceived, affords an easy method of elevating and lowering the bath. F is the bottom receiver, and the part on which the bather stands. It can be provided with a valve to let out the water; it can have a false bottom perforated so as to allow the bather to stand out of the water. The dotted lines, Q, shows the direction in which the cord is moved, when the bath is desired to be low red. This bath is easily and cheaply const ucted, and can be carried about with but very little trouble. Communications for Mr. Brown should be addressed box 116, P. O., Worcester, Mass.

IMPROVEMENT IN SPINNING ROLLERS.---Fig. 1.



The accompanying engravings represent an improvement in drawing rollers, which was recently patented in England by Messrs. Thomas Richards, William Taylor and James Wylde, cotton manufacturers of Walworth, in the County of Surrey. The improvement is illustrated and described in the London Patent Journal, and as we know that various unsuccessful attempts have been made among us to use the same material (not treated the same way, however, for the same purpose,) we thought that an illustrated description of the invention would not only be interesting but of great benefit to a number of our readers. Our common drawing rollers, which are covered with leather, get clogged with the fibrous material, cotton or silk, which passes between them. This is owing to a salt deposited on the rollers by the fibrous materials. In damp weather this salt attracts moisture, thus presenting an adhesive surface, which oftentimes carries the rove round the roller, causing the lap to be broken and irregular. The improvement consists in covering the rollers with vulcanized india rubber.

Figure 1 is a longitudinal section of the drawing roller. A A are tubes of vulcanized india rubber, which are held between ruffs, B B. The tubes A A are expanded to draw over the ruffs when they contract tightly on the spindle. The india rubber is of such thickness as to stand from one-eighth to one-sixteenth of an inch above the surface. To pass the india rubber tubes on the rollers, two metal pieces, C C, trumpet-mouthed, are placed on the end of the spindle, with the narrow end outwards. The india rubber is placed on the small end and pushed up, gradually expanding, and passes over the ruff to its seat on the roller. Figure 2 is a transverse section of the drawing roller. Figure 3 is a detached view of the extending metal piece, C. The india rubber is made in tubes in the ordinary way, and before using it is boiled for five hours in a solution of soda, somewhat caustic, and the flour of sulphur. This solidifies the india rubber and imparts the desired roughness to the drawing surface This vulcanized india rubber may be applied to all kinds of drawing rollers and cylinders.

A Patent Steam Bread-Baking Machine.

There is now exhibiting in London the first apparatus erected under a patent granted some months ago, to Mr. Lee, of Glasgow, Scotland, for making bread and biscuits by means of machinery, and by the application of steam instead of fire. The operation of this novel apparatus was exhibited at the bakehouse of Messrs. Lee and Robinson, (the patentee and his partner) in the classic region of Wapping, and a large number of persons were present to testify to the utility and practicability of the invention, which has for its object the accomplishment of the following points, as stated by the patentee:

"By the substitution of carbonated water for barm, to render bread more nutritive. A saving of 50 per cent. in the cost of fuel in heating the oven, by means of an improved method of substituting steam for fire. The gradual admixture of flour with the water without manual labor. To ensure the oven being kept of an equal heat by means of an indicator and regulator, and by means of which the heat can be kept exactly as may be desired. By the use of an ingenious contrivance to regulate the desired weight of bread, whether from an ounce to any number of pounds the baker may desire, without the possibility of error.

The saving of all manual labor in the manufacture of bread, with the exception of that of a few boys to place it upon, and receive it from, the machine. The avoiding the necessity of the human hand touching or kneading the dough." On the present occasion Mr. Lee described the nature of the invention with much minuteness, and gave the spectators an opportunity of witnessing the practical effect of the machinery in its various stages. The grand purpose which he sought to achieve was the saving of time and manual labor in the manufacture of the most important necessary of life; and, in order to show how this object was to be carried out, Mr. Lee exhibited the entire process of baking bread and biscuits from the first preparation of the flour to the placing the dough into the oven, and withdrawing it when ready for consumption.

All this was done by mechanical contrivances, and the men employed were not even called upon to weigh the dough, or measure the size of the loaf, the apparatus, when set in motion, being calculated to serve every purpose which in the ordinary process of baking, is achieved by hand. The result of the experiments afforded satisfactory proof, that Mr. Lee's discovery in the art of baking deserves every encouragement, as well on the score of economy as from the fact that it introduces a more speedy, and at the same time a more cleanly, method of manufacturing bread. The rapidity with which the work may be carried on by this new and interesting process is most surpassing. For the supply of bread to schools, or other large establishments—such as poor law unions and prisons—this invention seems to be specially applicable.

Patent for the Reduction of Gold.

In answer to many enquiries, we will soon publish the specification of the Patent for Reduction of Gold lately patented by Prof. Jas. C. Booth, of Philadelphia.

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Scientific American

NEW YORK, NOVEMBER 2, 1850.

Commissioner of Patents' Report.

Part first of this Report, on the Arts and Manufactures, is at last published in a very handsome volume; by it we learn that 1,076 patents, including 30 re-issues, 5 additional improvements and 49 designs, were granted: five hundred and ninety-five caveats were filed. There were nineteen hundred and fifty-five applications, consequently eight hundred and seventy-nine rejections—nearly as many as the patents granted. The receipts of the Patent Office amounted to $80,725 78; the expenditures, &c., to $77,716 44. There are now in the Treasury $169,505 17. The amount added to the standing fund is small in comparison with previous years; good reasons are given for the increase of expenditure, by the number of rejections, and consequent withdrawal of the "two-thirds patent fee." One part of the Report states that there were 1,409 rejections last year; this, with 1,076 patents issued would make 2,485 applications—there seems to be a little discrepancy in this, perhaps a typographical error.

The Commissioner speaks forcibly respecting the wrongs suffered by inventors and patentees, in being plundered of their just rights by patent pirates. He proposes that rejected applicants should not be allowed the return fee of $30, but forfeit $20. The reasons for this, he states to be the actual expense of examination, "which, on an average, is much more than the sum of $10, which deficiency must be made up by others." Thus," he says, "the quasi inventor who has given nothing to the arts fails to pay his proportion to the Office, while the real inventor is required to make up the deficiency. It not unfrequently happens that the Office is speculated upon by inventors and agents with regard to examinations. They find it (as some have admitted) cheaper to give to the Office ten dollars for the investigation of a case, than to purchase the necessary books and examine for themselves. By this means an amount of labor is involved, costing the Office, in almost every case, more than the amount received." The Report also recommends that only $10 of the caveat fee be allowed on the Patent fee—thus making the applicant pay $10 for the filing of the caveat—in other words, his privilege. It is also recommended that patentees, for additional improvements to their patent, be charged $30, instead of $15. The raising of the fee of $15 to $30 for re-issues, is also recommended. The Report speaks strongly against granting patents to any but original inventors as recommended by some, and as is the practice in Britain; but he makes an exception to secret processes of foreign manufacture, not new in the country where they are employed, and not the property of any individual.

Four amendments are thus recommended to be made in the Patent Laws. All these relate to the fees of the Patent Office, every one of which is for an increase, viz., an increase of $10 for rejection fees, $10 for caveat fees, $15 for improvements, and the same for re-issues. It is no doubt true that the Patent Office is oftentimes subjected to a tedious correspondence, which amounts to more than the Patent fee, or the $10 of a rejected application; but the fault as often, if not oftener, belongs to the Patent Office, not the applicants for patents. We expected some sympathy expressed for inventors and the way many of them have been badgered by the Patent Office, but there is no word of condolence pervading it from beginning to end. We know one inventor who was put to the expense of $3,000 by a wrong decision of the Patent Office. It is the privilege of the Patent Office, because sheltered by law, that it only suffers a little extra trouble in cases of controversy, but the applicants are always subjected to great expense. We do not think that there would be many objections to raising the fees as recommended by the Commissioner, if applicants were satisfied that exam nations were made candidly and thoroughly, correct decisions given, and full and proper references submitted to rejected applicants. A reform in this respect is certainly much needed, and it requires no new law, but the enforcement of measures under the control of the Commissioner himself.

The Report is a very excellent one, as a whole, and will form the subject of more articles in future numbers.

A Hint to Subscribers.

If each of our subscribers who receive their numbers in single wrappers would exert their influence to procure one or more subscribers, they would all receive their papers every week in a much better condition than they now do. Where there is but one paper directed to a post office, singly, it is sent in a single wrapper and folded smaller than when two or more are sent to the same place, consequently it is much wrinkled, and sometimes it possibly goes astray in the post office. All our packages of papers are made up in large stout wrappers, with a slip around each paper, neatly folded. A package seldom goes astray; and each paper is neatly preserved for filing away. The Scientific American is worth preserving and binding at the end of each volume. Subscribers who preserve their numbers in good condition, have a good volume—one worth twice the amount of subscription price.

It would require no great effort of our subscribers to accomplish the object we thus respectfully set before them. We employ no travelling agents to get subscribers, we have always trusted in the merits of our paper and the good will of our subscribers for our circulation. We have never yet trusted in vain—and we believe that our request will be met with a hearty response. Every subscriber may, with no little confidence and zeal, press a friend to subscribe, for assuredly this present volume will be far superior to all its predecessors.

The History of Propellers and Steam Navigation, which we have offered as a premium for three or more subscribers, is now ready, and is certainly worth obtaining. The price of this book is 75 cents; it contains 82 illustrations and 144 pages of fine letter press, descriptive of the subject. More than 500 copies of this book have been distributed during the past week to those who were entitled to receive them for obtaining clubs. We have a large number yet to distribute. Those who avail themselves of this premium have not only got a good book, but also get their papers in better condition every week, and full clubs get their papers at a great reduction of price. These are things worthy of consideration, and can be obtained by almost every one of our subscribers.

The Russ Pavement.

The constant smoothing of the Russ pavement by the wear of vehicles has rendered it difficult for horses to keep their feet upon it. Many horses have fallen on the pavement opposite the Park, and attention has been directed to the search of a remedy for the evil.

[The above is from an exchange. The remedy is to lay no more of such large block pavements, but to use small six inch wide blocks for new pavements, and to employ men at an enormous expense to roughen the present pavement by pick hammers. We pointed out the evils of the large blocks, long ago; the the public are beginning to find out the truthfulness of what we said about the said pavement, wrongfully termed *Russ*. The evils of the said pavement are not yet fully developed either; wait till the blocks get perfectly smooth, and then it will scarcely be possible for horses to travel over them.

War Against Machinery.

The journeymen Stone Cutters Association of the cities of New York, Brooklyn, Jersey and Williamsburg have passed resolutions that no member will work on any stone of the same quarry that supplies steam manufactories in New York for cutting or sawing *Brown Stone*. One resolution is a request that the stone cutters of Philadelphia and Boston will send a strong remonstrance to the quarrymen, and to aid and abet their "trice holy cause," as they term it. The journeymen stone cutters of this Association number 900, and they have pledged themselves individually not to work any stone that is got in the same quarry that supplies machines for cutting stone.

We exceedingly regret that any body of men is to be found, in this day, to pass such unwise resolutions. That they have a perfect right to do so, no one will question, but the experience of the past might have taught them better. If machinery can do their work, cheaper and as well, their occupation is gone, it makes no matter how strong they are in numbers, or how many resolutions they may pass. The first spinning jennies and power looms were broken by mobs, but neither the hand spinners nor weavers could arrest the progress of machine labor. We look upon every improvement in machinery in the light of a *general* benefit.

Invention in the Sugar Manufacture.

The "Sun" gives a description of a new invention for graining sugar, which has been purchased by Messrs. Howland & Woolsey, (the latter a well-known sugar manufacturer,) and is thus described:

"The sugar is taken in its black, dirty state, just as it comes from the planters' boilers, thrown into the machine, and in a twinkling the refuse stuff is separated from the mass, leaving the clean, white, sparkling sugar alone by itself, ready for family use. In *two minutes* the refining is completed, which, by the usual mode, required three weeks of time, the employment of many hands and the consumption of much fuel. In this new process no heat is required.

The invention is one of remarkable ingenuity and certainty in its operations. The sugar to be refined is mixed with molasses, until it is of a semi-fluid consistency. The mass is then placed within a revolving sieve, the wires of which are so fine as to retain the sugar but permitting the exit of the liquid parts. By means of steam power the tremendous velocity of two thousand revolutions per minute is given to the sieve, and so great is the centrifugal force thus applied to the mixture within, that the molasses and impurities instantly fly off, leaving the sugar behind, purified, white, and, what seems singular, perfectly dry. The article thus produced is what is generally known as refined brown sugar. It resembles powdered loaf sugar, and needs but one more operation to convert it into the loaf. The entire machine occupies but little more space than a good sized wash tub."

The first of these machines ever produced on a practical scale in this country, has recently been constructed at the large machine works of our old friend Mr. G. B. Hartson, Nos. 58 and 60 Vesey street; it is of a capacity to refine 200 lbs. of sugar in two minutes.

The idea never would have struck us, that, by giving sugar syrup a rapid centrifugal motion, the moisture alone would be thrown off, and the grain crystalized and refined. We do not yet see how it can be purified by this operation. A machine for drying and depurating sugar by steam and centrifugal motion, is illustrated and described in No. 41 Vol. 5, Sci. American. Centrifugal motion and its virtues were first displayed in a revolving machine for drying cloth, (one was patented by Mr. Nelson Chaffee, of Conn., two years ago,) it has been applied to moulding metal pipe, and now it is applied to themanufacture of sugar.

Belts of Machinery.

MR. EDITOR:—Some of your numerous readers in our city have had some discussion as to whether the thickness of a belt can make any difference in the speed of a machine:—some of us contend that, of necessity, it does make a difference; while others, some of whom are quite celebrated for mathematical acumen, stoutly contend that the thickness of the belt can have no effect on the speed whatever. Will you give your views on this point? Suppose, for example, a machine driven with a belt ⅛ of an inch in thickness, the driving pulley 20 inches in diameter, and the driver 10 inches diameter; would the speed be the same if the belt was eight times as thick? If the thickness does make a difference, how should we measure, in order to calculate? on the outside, or centre of the belt, or where? E.B.M

Manchester, N. H., Oct. 19, 1850.

[There is only one way to settle the question, and that is, to that the difference between a thick and thin belt by a "dynometer" applied to the driven shaft. The question "thick and thin belt," is not correct, but say belts of 1-10, 1-8, 1-6, 1-4, inches thick. A belt over a certain thickness will be too stiff and slip, and one too thin will stretch and slip; the grand question is, "what is the right thickness?" and even then the difference in the quality of leather of the same thickness will prevent any person from arriving at mathematical unswerving conclusions. We cannot further enlighten our correspondent. The machinist of good perceptive faculties, has what is called "a knack" in adapting everything under his care to perform its duty in the best manner; this "knack" like the skill of the painter, cannot be taught by any rule.—[ED.

Labor-saving Soap.

The following is a receipt for making a barrel of labor-saving soap; it was purchased of a pedlar by Mr. D. Edwards, Little Genesee, N. Y., one of our correspondents. He sends it to us for the benefit of the public, to relieve them of such taxes:—

Take 14 pounds bar soap, or 5 gallons good common soap, 3 pounds sal soda, 1 pound rosin, pounded fine, 8 ounces salt—boil it in five gallons soft water, empty it into a barrel, fill it with cold soft water, add 1 pint turpentine, stir it well, when cold it is fit for use.

To make hard soap all the articles mentioned, with the exception of the water, are doubled. As a soft soap receipt, the above is very good, but it is not "labor-saving," by any means. The articles employed, have long been known to every practical chemist, as good solvents of grease. We have seen some labor-saving soap receipts, far inferior to the one above, for it is a good one—among the best we have seen.—[ED.

Another Discovery in Daguerreotyping.

M. Niepce St. Victor, of Paris, has discovered that if a daguerreotype plate be immersed in a bath composed of the chloride of sodium and the sulphate of copper, and to allow it to remain therein for a short time, then wash in distilled water and dry over a spirit lamp, it is capable of receiving the impression of an engraving laid upon it and exposed to the sun for half an hour. It is afterwards washed with ammonica water, or a solution of cyanide of potassium or hypo-sulphite of soda; these washings remove all the chloride of silver. The plate is next washed in a large quantity of water, and allowed to dry, and the impression is fixed by the means of chloride of gold in the usual way. Impressions may be taken by means of these plates, if placed in a camera obscura and exposed to the light for one or two hours. This process is not adapted for portraits. M. N. St. Victor has also discovered that iodide of silver furnishes impressions by means of ammonia similar to the chloride, without the intervention of the mercurial vapors.

Our Cotemporaries.

If any of the papers in which our prospectus for Volume 6 of the Scientific American appeared, do not receive our paper regularly, as promised, they will oblige the publishers by making a complaint to that effect. Over 600 papers throughout the country have inserted our prospectus, and we have their names entered upon our books, but there may have occurred some omissions, and if so, we should consider it a favor to be advised of it, when due reparation will be made, and back numbers furnished to make their sets complete.

Notice.--Erratum--Patent Laws.

On page 35, No. 5, in our comments on the English Patent Laws, the sentence (16th line) reads, "when an application is made for a patent, notice is sent to all those who have *patents*:" it should read, "all those who have filed *caveats*." The difference is a very essential one—the error was not one of a misunderstanding of the law, but an oversight.

A strong effort will be made next session of Congress to get the Bill passed for a reform of the Patent Laws.

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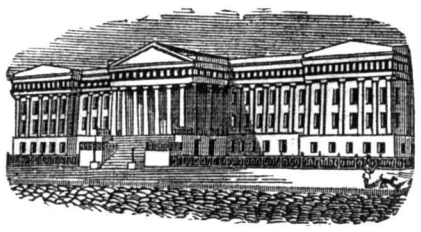

☞Reported expressly for the Scientific American, from the Patent Office Records.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.

FOR THE WEEK ENDING OCTOBER 22, 1850.

To Chas. Benedict, of Waterbury, Conn., (assignor to the Hotchkiss & Merriman Manufacturing Co.,) for improvement in Suspender Buckles.

I claim connecting the wire forming the tongue of the buckle to the outside plate, by means of an eye or hinge formed by binding a portion of the plate, thus making the whole of but two pieces of metal, also binding or forming the wire which forms the tongue of the buckle, in such a manner as to make a lateral spring for securing itself in its proper place; and also the method of securing the points of the tongue by the lateral hooks, curved from the sides of the plates in such a manner as to receive and partially or entirely cover the points of the tongue, and the whole of these contrivances arranged, connected, and combined substantially as herein described.

To H. W. Bertholf, of Sugar Loaf, N. Y., for improvement in Feeding Apparatus for Straw Cutters.

I claim the use and employment of the adjustable and compressing bed, in combination with the feed roller and a cutting box, having an adjustable block-piece to contract the mouth of it, and so arranged as to present the straw or stalk obliquely at different angles to the action of the knife, and compress it while under the edge, as set forth.

[See engraving of this invention in No. 7, Vol. 5, Sci. Am.]

To Joseph Card, of Fairport, Ohio, for improvement in Cheese Presses.

I claim the elastic strap for raising the platen rod, arranged and operating as set forth.

To L. H. Crocker, of Cincinnati, Ohio, for improvement in machines for making and holding cores for casting.

I claim the combination of the two moving jaws with the stationary piece, said moving jaws being shaped and actuated in the manner specified.

I also claim keeping the cores straight and stiff in the flasks, without the use of anchors, by means of contrivances as described.

To James Cunningham, of Reading, Pa., for apparatus for reversing or stopping Locomotive Engines.

I claim the arrangement and connection of the system of devices, consisting substantially of a rock shaft with its hand lever and arms, link rods, helical segment, drum, sliding key and oscillating arms, together with the eccentrics and valves, with their respective rods, by means of which the movement of the steam valves of a locomotive engine can be arrested or reversed, with proper lead, to reverse the motion of the locomotive by a single movement of the hand.

To J. T. Elliot, of Carrolton, Miss., for improvement in Cotton Presses.

I claim the employment of the press described, so arranged that it may be conveniently charged in an upper story of the building in which it is placed, and actuated and uncharged in a lower story of the same.

To Wm. C. Pagett, of Xenia, O., for improvement in Sub-soil Plows.

I claim the scoop instrument, with the combination of the cutters in the rear, as a subsoil plow.

To T. B. Pyron, of Salina, Tenn., for improvement in apparatus for releasing horses from carriages.

I claim combining two tapered trace-bars, with the flexible lever or disengaging strap attached to the upper end of the curved confining box plate projecting outward from the swingle-tree, in which the flexible lever and ends of the tapered trace-bars fit, and are properly secured with the traces; by the curve of the box plate, and a guard or holder attached to the flexible lever, and fitting into the cavity of the box-plate directly over the ends of the trace-bars, the disengagement being effected by drawing a cord attached to the flexible lever, which will cause it to approximate to a straight line, and with it elevate the ends of the trace bars, and liberate the same from the curved box plate, as fully set forth.

To E. S. Renwick, of Washington, D. C., for improved wrought Railroad Chair.

I claim a wrought iron railroad chair with legs formed from that portion of the plate on which the rail is usually supported, substantially as set forth.

To T. G. Stagg of New York, N. Y., for improvement in preparing Beef-steaks for cooking.

I claim preparing beef and other steaks for cooking, by running them through toothed rollers, substantially as set forth.

[Epicures may expect something rich from this patent; they will no doubt thank the Patent Office for its generosity.]

To M. & A. K. Whittlesey, of Spring Port, N. Y., for improvement in the fastenings of Coulters for Plows.

We claim the construction of the double plates held in parallel position by the combined action of the coulter and two bolts, substantially as set forth.

To J. H. Wurtz, of New York, N. Y., for improvement in processes for manufacturing Alum.

What I claim is obtaining by the action of sulphuric, acid or its equivalent, upon the substance called green-sand, green-sand marl, or simply marl.

RE-ISSUES.

To M. F. Potter, of Charlemont, Mass., for improvement in Portable Furnaces. Patent dated Jan 22, 1850. Re-issued Oct. 22, 1850.

I claim the construction of a portable furnace by which it may be connected with a stove in the manner described: that is, a furnace adapted to the boiler, or other hole of a stove, with a downward draft or driving flue for the escape of the smoke through the bottom into the stove, for the purposes set forth.

To S. A. Bentz & Wm. Andrews, of Frederick, Md., for improvement in Mills for Grinding. Patent dated Dec. 4, 1849. Re-issued Oct. 15, 1850.

We claim the vibrating motion given to the concave, substantially as set forth.

DESIGNS.

To Ezra Ripley, of Troy, N. Y., (assignor to G. W. Eddy, of Waterford, N. Y.,) for two designs for Stoves.

To J. L. Jackson, of New York, N. Y., for design for Grate Frame and Fender. Dated Oct. 15, 1850.

Decision in the Great Telegraph Case.

U. S. Circuit Court; District of Massachusetts—by Judge Woodbury. Francis O. J. Smith, vs. Hugh Downing and others.—This was a case in the equity side of the U. S. Court, by an assignee of Professor Morse's Telegraph against a company operating House's Printing Telegraph, to obtain an injunction prohibiting the use of House's Telegraph. It is believed to be the most important Patent Case ever tried in this country. The testimony was unusually voluminous, embracing the evidence of many of the most distinguished Professors of science and mechanical engineers of the country.

The case was argued in June and July last, in Boston, at great length, and with great fullness and ability, by Hon. F. O. J. Smith and B. R. Curtis, Esq., for Morse's Telegraph, and Chas. L. Woodbury, George Gifford, of New York, and Rufus Choate, Esqs., for the House Telegraph.

The Court, after holding the case under advisement for several months, in October delivered the following learned and instructive opinion, which we give at length, as it is fraught with instruction of great value to both the inventors and patentees, and to the public generally, and which we briefly noticed last week.

U. S. Circuit Court—Boston.—In the case of Frnncis O. J. Smith et al. representing Morse's patent, *vs.* J. W. Clark et al. representing House's patent, Judge Woodbury delivered an opinion against the injunction prayed for by the plaintiffs. His honor proceeded first to construe the patent of Mr. Morse, which he did in a manner to sustain its validity, viz: that the claim of the principle, or the use of the motive power of electro-magnetism, must be understood as being in combination with the machinery by him invented. To give it a broader signification, his honor said would be to make void the patent of Mr. Morse. Having determined the construction of the patent, his honor proceeded to consider and comment on the evidence contained in the record, and after briefly considering the numerous European telegraphs, electric and galvanic, which were invented during the last century and the present one, (including Soemering's, Ronald's, Schilling's, the one at Madrid, and others) he proceeded to comment on the attempt of Coxe, in America, and afterwards on the electric recording telegraph invented by a son of Massachusetts, at Long Island in 1828, Mr. Harrison Gray Dyar, which he characterized as of remarkable ingenuity, as, in the application of the idea of time in regulating the space so as to compose an alphabet, and the first American who had succeeded in this purpose of recording, although the system he used differed some from both House's and Morse's. The experiments of Prof. Henry, at Albany, also anterior to Morse's attempt, in which he endowed the electro-magnet with power equal to raising the weight of a ton, and obviated the great difficulties which had lain in the way of using electro-magnetism. These all preceded the passage on board the ship Sulley, in 1832, when Mr. Morse and Dr. Jackson conversed on the subject, and when Mr. Morse commenced his labors. After following down the various inventions and labors of Steinheil, Gauss, Alexander, Weber, Cook and Wheatstone, on the telegraph, to the date of Morse's application for a patent, in 1837, his honor remarked that something was wanted in all these to produce a result perfect for practical use; that, among the sixty competitors who had labored for this end, Morse appeared to have got the most practical and perfect machine. The combination of the pen point and the machinery to move paper, with the telegraph, his honer thought to be that desideratum and the essential point in Morse's invention.

His Honor said that Mr. Morse and his assignees would be protected in the method of telegraphing claimed by Mr Morse. The pen, a most happy thought; the rollers and paper, a most important thought; and the stenographic alphabet, the crowning thought; and any infringement on the things described, &c. would be punished. While Morse is thus secured, the same latitude is left open for his successors to invent as was accorded to Mr. Morse in improving on his many predecessors.

Now, has this patent been violated by the defendants? The defendants insist they have used nothing which was not open and public before the date of Morse's invention. While shielding the public in this right, we must not allow any one to use the invention of Morse without his assent. House's machine appears much unlike Morse's, and, in its work differs in using two new powers. While Morse's is simple, that of House's is so complicated as to require days of attention by mechanics to be understood. While Morse's is speedy, House's gives lightning to Roman letters; his speed of breaking and closing is much greater than Morse's and without this greater speed he could not accomplish his object.

Morse's machine traces the signs intended; the type or the lever at one end do so, and the pen at the other also. House's machine does not do this. It acts at both ends by signals, and traces nothing. This new power of axial magnetism, the invention of which is claimed by Mr. House, aids in transferring this so as to have it printed, and the U magnet of Mr. Morse would be utterly inefficient for this purpose. House's is a signal and printing telegraph, and Morse's is a writing telegraph. The electro-magnetism between the two points had been used long before Mr. Morse, and is, therefore, no infringement of his invention. House produces in his machine new results, and cannot be considered as an equivalent for Morse's, as he uses neither the pen, the lever, nor the stenographic alphabet to translate the signs, as appears from the testimony of Prof. Henry, Dr. Jackson, Prof. Hare, Col. Borden, Hibbard, Channing, &c.

His Honor then commented on the originality and novelty in House's machine of the axial magnetism and the use of the air tubes and condensers, and expressed himself astounded, in examining this case, to find that so much which he had supposed to have been new and original in telegraphing, was not of late origin or derived from Mr. Morse's, as electro-magnetism, wires, &c., but that the invention of Mr. Morse lay in a different place from what he had formerly supposed.

Morse's leading novelties, his honor thought were—1st, the local circuits; 2d, writing at a distance by electro-magnetism; 3d, the stenographic alphabet. Neither the electro magnetism, or the Roman letters, or the printing apparatus were invented by Morse. The local circuits and the stenographic alphabet were not used by House, or the writing, &c.

The opinion of the experts, who testified in the case, as to the principles of the two machines, stood thus:—Mr. Morse, who was not regularly educated to mechanics, and whose profession was that of a portrait painter, and, beside him, Mr. Foss, his assistant, who, until a few years past, had been employed as a grocer and baker alone, regard this as an infringement. On the other hand, a numerous body of experts in mechanics—some twelve or fourteen—embracing some of the most talented men in the country in their professions, unite in opinion that this machine of House's is no infringement. Some of these gentlemen say the two machines are as unlike as a goose-quill and a printing press.

His Honor said, he thought the difference of Mr. Morse and Foss from the rest of the experts, arose from attaching a wrong meaning to the word "principle," as used in the patent law, and that, setting aside the battery and wires, &c., which were public, long before Morse began to invent, there could be no question of infringement. The public had the same right to make and re-employ the old modes, the same privilege to make improvements as Morse had in 1832. His honor said, on considering the whole, I do not think the plaintiff entitled to an injunction. His honor expressed his sense of the weight due to the decision of Judge Monroe, of Kentucky, against O'Reilly, but thought it did not apply in this cause, and said that his examination of the evidence in this cause had impelled him to take the views of the subject he had stated, and which, if wrong, he felt gratified it was in the power of another and higher tribunal to reverse. B. R. Curtis and F. O. J. Smith for the plaintiffs; C. L. Wooodbury, Geo. Gifford, of New York, and R. Choate, Esq. for the defendants.

Military Surgeons.

We extract the following from the London Lancet of September 7th:

At the battle of Istadt, two surgeons were killed, and no less than eighteen surgeons wounded, in the armies of the Duchies. The celebrated Stromeyer, who was present at the battle, remained with the wounded when General Willisen retreated, and was captured by the Danes. He was sent a prisoner to Copenhagen, but was subsequently released, and allowed to proceed to the head-quarters of General Willisen, at Rendsburg. The casualties of the Danish army surgeons have not transpired; but those which have been published as occurring to the surgeons in the service of the Duchies, are another proof of the exposure of the Medical Staff to the danger of war in common with the rest of the army.

It is stated that the late surgeon Cook, of the navy, had two patients killed by cannon shot while on the operating table, during naval engagements at sea, in the war of 1812. —[Philadelphia North American.

[In addition to this, let us say, that at the battle of Navarino, Dr. Peter Marshall, brother of Mr. John Marshall, of Louisville, Ky., performed a feat of heroism with a surgical instrument in his one hand and a boarding-pike in the other, under the eye of Admiral Codrington, which won for him the title of "the brave little Doctor," and was particularly noticed in the official despatches.

If bromine be brought into contact with albumen, the bromine at once finds itself enveloped in albumen without any coagulation being produced, and the volatilization of the bromine is prevented at the same time.

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TO CORRESPONDENTS.

"D. M., of Pa."—You will see by again referring to the notice, that Dr. F. resides in Providence. We have written requesting him to furnish you with the information. The price of Ewbank's Hydraulics is given in the register at $2,50.

"D. E., of N. Y."—If you char the ground timbers of the trip-hammer they will last much longer. Or if the timbers are kept in a solution of the sulphate of copper (blue vitriol) for a day or so, then dried, it preserves them for a great length of time. We have seen the smooth piece of iron used on the furnace by straw-hat pressers, and in families also, and always with success, when rightly managed.

"M. A. C., of N. Y."—We have carefully examined your device, and believe it both novel and useful; you can dispense with the upper rack gearing, as it adds considerably to the friction and serves no useful purpose; you will see this on a moment's reflection. The model can be sent by express: it should not be more than one foot square, in size, if possible, as the Commissioner of Patents objects to large sized models. If no rule existed in this respect the Office would soon become filled.

"R. E. S., of Penn."—Foreign patents can be secured through this office; advice in regard to securing patents in any foreign country can be obtained from us by letter.

"C. K., of Me."—See to it that no one is allowed to take advantage of your rights; plenty there are who would unhesitatingly appropriate your labors and rob you of your just rights. Send a model without delay to this office, and have an application made for a patent.

"A. J. B., of Ind."—Your communication is declined as the views expressed are not according to established fact; you may do better with some other subject with which you are more acquainted.

"A. M., of Miss."—What is meant by working engines expansively, is adjusting the valves, so that the steam is shut off from the cylinders before the end of the stroke, whereby the residue of the stroke is left to be completed by the expanding steam.

"T. A., of Mass."—Patents are granted in France for 5, 10, and 15 years; but if it be for an invention imported from a foreign country, the duration of the French patent can never exceed that of the original one. The patent must be put into operation in two years from the grant.

"E. & E. G., of Iowa."—Your communication was answered by letter some days since, which we presume has reached you ere this.

"E. L. S. of Va."—Air consists of oxygen and nitrogen mixed together in proportion of 3½ lbs of nitrogen to 1 lb of oxygen.

"C. J. P., of Mass."—We know your views are not correct, and we can see no reason why you should continue to reason us in a favorable verdict for your peculiar notions. You ask our advice and instead of taking it, you presume to believe us wrong, when we know better. We hope this will satisfy; as we cannot spend time to write a book upon the subject.

"C., of N. Y."—It would require diagrams to answer your query. The publishing of it would lead to a host of correspondent's answers, and after all, little would be gained of practical benefit.

"E. C. N., of Ala."—Your paper was sent to another office which accounts for its non-appearance. You will receive it regularly hereafter.

"E. B. P., of Tenn."—We have entered your name for the time specified. Please enclose to our address the amount due, $5. We do not know the prices of the machines you refer to. Application should be made to the inventors.

"W. T. C., of Va."—We have written to our agents in Halifax in relation to the CHRONICLE.

"L. W. D., of N. Y."—We will attend to yours in a short time.

"L. & J. and R. C. S., of Charleston."—Your volumes of the Scientific American were shipped by the Southerner last Saturday.

"J. C., of Ohio."—Your invention is very ingenious, but we cannot advise you to proceed in the hope of it being of any advantage to you, or to its ultimate adoption. We prefer the simple crank, and do not see the disadvantages which some see, in its use and action.

"E. V., of N. H."—The snapping of the matches is caused by the exploding, if that term may be rightly used, of the detonating or percussion powder. We know of no substance to prevent the bad smell of the sulphur. Orris root may mitigate it in a measure.

"C. F. F., of La."—Your letters of the 14th with $2 enclosed, came to hand duly. The names D. T. F. & Co. are entered upon our books. The draft was accepted promptly.

"L. L., of N.Y."—What has become of that "Scientific American Churn?" You are losing the interest on your money which is deposited with us. We have not heard from your clothes washer since the application was filed, but presume we shall very soon

J. & B., of Vt.; J. R., of O.; L. & R., of N. Y.; V. H. & N. H., of N. Y.; T. R. B., of N. Y.; E. G., of Mass.; J. O., of Ct.; J. B. McC., of N. J.; A. N., of N. Y.; A. J. S., of Ga.; B. N., of N. Y.; T. F., of N. Y.; J. W., of N. Y.; D. C. McC., of N. Y.; and M. G. of Conn.—

The specifications and drawings of your inventions have been forwarded to the Patent Office since our issue of Oct. 19.

Money received on account of Patent Office business, since Oct. 22, 1850:—

W. D. B., of N. J., $5; J. B. McC., of N. J., $30; A. D. S., of N. Y., $50; N. B., of R. I., $30; T. H., of N. Y., $55; B. N., of N. Y., $20; L. R. W., of Vt., $30; A. N., of N. Y., $20; J. W., of N. Y. $30; and T. F., of N. Y. $20.

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Those desiring Volume 5 of the Scientific American are informed that we are able to furnish a few complete volumes, bound, at $2,75 each. Also, we can send by mail sets complete, minus No. 1 for $2. Volume 4, incomplete sets, comprising about 35 Nos., will be forwarded by mail on receipt of $1.

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Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office; stating the name of the patentee, and the year the patent was granted (adding the month of the year when convenient), and enclosing one dollar as fees for copying.

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TO TIN PLATE AND SHEET IRON WORKERS.—ROYS & WILCOX, Mattabesett Works, East Berlin Station, on the Middletown Rail Road, manufacture all kinds of Tools and Machines of the best quality, both in material and workmanship. This establishment being the only one where both tools and machines are manufactured, superior inducements are offered to the trade; all work warranted, with fair use. Agents in most of the principal cities of the United States and Canada. Orders promptly attended to.
F. ROYS,
E. WILCOX.
Berlin, Conn., Nov. 1, 1850. 7 1amly

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine, and other Steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
October 29, 1850. 28 Platt st., New York.

TO HAMMERSMITHS.—Wanted, a Tilter. Apply to the N. Y. Cast Steel Works, foot of 24th street, East River, New York. 6tf

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WOODWORTH'S PATENT PLANING Machine 1850 to '56.—Decisions had the present year in the U. S. Courts, in every part of the Union, having fully and finally established all the claims of the Woodworth Patent, the subscriber is prepared to dispose of rights to use the machine in the Counties of Queens, Richmond, Rockland, Suffolk, Westchester, and the other unoccupied Counties and Towns in the State of New York and in Northern Pensylvania. Ninety-nine hundredths of all the planed lumber used in our large cities and towns continue to be dressed with Woodworth's machines, which may be seen in constant operation in the steam planing mills in New York, Brooklyn, Williamsburgh, Albany, Troy, Utica, Rome, Syracuse, Rochester, Lockport, Buffalo, Elmira, Gibson, Owego, Ithaca, Binghamton, &c. &c. Persons holding licenses from the subscriber are protected by him against infringements on their rights. JOHN GIBSON,
4 5* Planing Mills, Albany, N. Y.

DUPLICATES OF DRAWINGS.—One hundred or more copies of the drawings required by the Patent Office, can be furnished at short notice, and upon reasonable terms, by MUNN & CO., Scientific American Office, who have made arrangements to duplicate drawings of machinery and inventions, at prices varying from ten cents per copy, upwards.

PATENT METALIC OIL FOR MACHINERY—Warranted not to gum. Manufactured under Cumberland Brothers patent (April 6th 1849), by C. E. de la Vergne & Co., Elizabethport, N. J. Transparent metalic, adapted to light bearings, spindles, &c., will last a quarter longer than pure sperm. For burning will be found superior. Fluid White Metalic, of the consistance of cream, to be used without wick and tube, adapted to the oiling of engines, shaftings, &c. will last twice as long as pure sperm oil. Hard White Metallic, to be used instead of tallow, will last three times as long; when used in cylinders, the packing must be renewed. Blue Metallic grease, prepared for greasing the inside of boilers when thoroughly cleaned, that the scale which afterwards collects may be removed with one third the usual time and expense. It is also adapted to the greasing of cog wheels; and for the axels of vehicles it has been found to last more than four times as long as any grease ever used for that purpose.
KENNEDY & GELSTON, Sole Agents,
50 3m No. 8 Pine st. New York.

12 POWER PLANING MACHINES.—SCRANTON & PARSHLEY, New Haven, Conn., have now finishing off 12 power Planers that will plane 8 feet long, 27 inches wide and 24 inches high; these planers are of the first quality, are self-feeding every way; the table is worked by a rack and pinion; the bed is 12 feet long. With each planer there is a splining head and counter shaft, pullies and hangers. They weigh about 4000 lbs.; the price, boxed and ready to ship, is $625. Also 12 hand lathes, with back gear on iron shears, and legs 7 feet long, swing 20 inches, about 700 lbs. weight—$75. These lathes are of the first quality. 1tf

FELLOE CUTTING MACHINE.—Messrs. JOSEPH ADAMS & SON, Amherst, Mass., offer for sale town, county and State rights, or single machines, with the right to use, of this unrivalled Felloe Cutting Machine, illustrated in No. 5, Vol. 6, Scientific American. It is portable, easily kept in order, requires but little power to drive it, and will execute in the most rapid and perfect manner, cutting 60 good felloes in one hour. 6tf

RAILROAD CAR MANUFACTORY.—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of Railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty and good taste, as well as strength and durability, we are determined our work shall be unsurpassed. JOHN R. TRACY,
5 tf. THOMAS J. FALES.

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ALCOTT'S CONCENTRIC LATHES.—We have on hand a few of these celebrated Lathes, which the inventor informs us will execute superior work at the following rates:—
Windsor Chair Legs and Pillars, 1000 per 11 hours. Rods and Rounds, 2000; Hoe Handles, 800; Fork Handles, 500; Broom Handles, 150, per 11 hours.
This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid). MUNN & CO.,
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The above machine can be seen in successful operation at P. R. Roach's mills, No. 138 Bank st., this city. 51t

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines, Dick's Presses, Punches, and Shears; Morticing and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 46tf

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WOODWORTH'S PLANING MACHINE—For sale, the right to use this justly celebrated labor-saving machine in the following States, viz. Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 304 Broadway. 51 tf

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Scientific Museum.

Scientific Memoranda.

Bathing and its Effects.—The last number of the Medical and Surgical Journal utters the opinion that once a week is often enough to bathe the whole body for the purpose of luxury or cleanliness. Flannel worn next to the skin at all seasons is proper, and is infinitely more healthful than all the daily baths now so fashionable. The argument by which this opinion is supported is as follows :

"The oil which is secreted by the sebaceous glands of the skin, serves the purpose of lubricating its surface. Now, if this secretion is constantly removed as fast as exuded, its destined object is thereby defeated. The excretory ducts of the perspiratory glands, and the glands themselves, require this unctious matter of the skin to keep them in health and action. If very frequent bathing of the whole body is practiced, it must be obvious that this matter cannot be long present to perform its office. As to the assimilation of functions of the skin and lungs, it will be apparent, that when the skin acts imperfectly, or ceases to act at all, the lungs have an extra amount of duty to perform; and it is generally in just such cases that engorgement takes place, constituting inflammation or pheumonia."

[While a great number of health staticians attribute the increase of modern longevity to this and that cause, we believe that the general benefits of cheap flannel, linen and cotton clothes are overlooked. We can well understand how necessary it is for savages to bathe once a day, but not those who enjoy the luxury of clean linen. We are no believers in extraordinary water indulgence, but where the point is, of prudential departure from necessary and healthful bathing, is the important question.

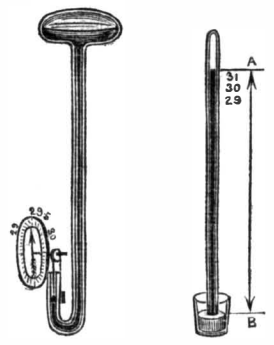
The Schoolmaster Abroad.—The newly elected Primate of Ireland, Dr. Cullen, formerly edited a miscellaneous and scientific journal, in which there appeared, in 1843, an editorial article denying the truth of the Copernican system of astronomy, and asserting that the sun was about six feet in diameter, and that the quantity of matter in the sun, moon and stars, was less than one-third of that contained in the earth. The article goes on to show that the earth has but one revolution, its diurnal one, and that we must go back to Moses and the Son of Sirach for correct notions of the order and course of nature. What gives importance to these opinions of Dr. Cullen is the fact that the system of education devised as a substitute for the national schools in Ireland, established by the English government, is under his control and authority.

[The above we extract from an exchange, we have seen it in a number of papers; the latter part of it is not true. He has nothing to do with the National College schools of Ireland; but we believe the former part is perfectly correct. Dr. Cullen does not believe in the deductions of Newton—his "Principia," is a prescribed book. Every excuse must be made for the old Doctor; he is no astronomer, and probably never heard of his countryman's (Lord Rosse's,) great telescope or perhaps he may be like old Maud, in "The Tales of my Landlord," he may hold to the opinion that telescopes are like fanning mills, "sinful things, and perversions of the natural gifts of the Almighty."

Fire Healing Art.—A very curious medical discovery has lately been made in Paris—it is the method of curing instantaneously sciatica, by applying a small jet of fire upon the ear of the side affected. This treatment known and employed for ages among the Scythians, in Persia and in Portugal, is now only in actual use in some parts of Corsica. Several experiments have lately been made by some of the most eminent physicians of Paris, and with astonishing success. Persons who have been for months affected with sciatica have been instantly cured by this light and innocent burning.

Spheroidal State of Water.—M. Boutigny, of Paris, has devised an exceedingly simple method for showing his interesting experiments on the spheroidal state of fluids. He takes a platinum wire and rolls it into a spiral like the spring of a watch, taking care to depress the central portion. He forms thus a sort of capsule or circular and concave grid-iron, in which the water is contained when the wire has been previously made red hot. By the repulsion of caloric the water is retained, and forming itself into a spheroid, rolls about without flowing through. Alcohol or ether may be substituted for water; when the vapor escaping takes fire above and below the wire,—but the spheroidal drop moves rapidly about within the flame without undergoing combustion.

The Barometer.



This instrument is by far the most important connected with pneumatics. The essential part of it is a well formed glass tube of 33 or 34 inches long, of equal bore, and containing pure mercury, and so arranged that the mercury may be supported by atmospheric pressure; other contrivances are for ascertaining the correct height of the column. It appears at first sight an easy matter to fill a tube with mercury and invert its open end into a cup of the same metal, but the construction of a good barometer is a work of great nicety. Mercury is liable to contamination with other metals of different gravities from it, consequently an admixture would make the mercurial column give wrong indications. Both air and moisture must be entirely shut out from the mercury and tube. The tube is first gently warmed, to dry it thoroughly. A quantity of the mercury is then poured in (about 3 inches) and is then boiled over a charcoal fire cautiously, taking care always to turn the tube round. After boiling about two minutes, the open end is closed by a cork to prevent the introduction of moist air, and the tube is then allowed to cool to prevent the cold mercury, that is next to be poured in, from breaking the tube. The tube is thus filled gradually, every three inches of mercury being treated as described, till the tube is filled, when the finger is placed quickly over the open end to exclude the air, and the tube is then reversed, with its open end in a cup of pure mercury. The column then sinks a little in the tube, and expels every portion of mercury which had not been boiled, and there is neither air nor vapor above the mercurial column, the length of which indicates the atmospheric pressure, when the temperature is below that degree, which raises the mercury into vapor. Prof. Daniell first invented the method of filling and boiling the mercury in vacuo and in uniting a ring of platinum with the open end of the tube. This is the best plan of filling the tube, but it is not within the reach of every person to make one in this way, but it is by the plan we have described. The excellence of the barometer depends upon the absence of all matter but mercury from the tube. The mean annual height of the mercurial column varies from about 30,065, to 29,785. The scale is always attached to the solid parts of the instrument, and it only measures the variations in one of the levels, viz., at the top of the column, A. Every fall of the column produces a difference of level in the cup, at B, fig. 1, and *vice versa*.

The variations of the atmospheric pressure, therefore, or height of the mercurial column are made up of both the variations of level at A and B, and are therefore rather greater than those of A alone. The divisions of the scale, therefore, are never made of exact inches by the instrument makers. Fig. 2 is the Wheel Barometer, or Weather Glass; its scale is more convenient than figure 1, but it is not so good as the cistern barometer, fig. 1. The weather glass, instead of terminating in a cup, is curved up like an inverted siphon. A float is placed on the surface of the mercury in the shorter limb, and is connected with a string passing over a pulley, and is nearly balanced by another weight. An index hand on the axis of the pulley moves over the dial plate which is graduated to indicate the variations of the mercurial column. With an increase of atmospheric pressure, the mercurial column rises and indicates fair weather, the fall of the column indicates the reverse. Every good sea captain carries his Marine Barometer, and it often tells of an approaching storm where there is no signs of it to experienced sailors, in the atmosphere. Those who have a great deal of out-door business should possess barometers. Our farmers would not find themselves any poorer by owning such instruments. Their cost is from $10 to $25, according to the style in which they are constructed.

Photographic Pictures on Glass.

The following improvements in photography were recently described by M. N. St. Victor, before the Paris Academy of Sciences :—Mix two or three grammes (30 to 45 grains) of honey with the white of an egg, adding 20 grains of crystalized iodide of potassium. It is essential that the iodide should be added to the white of eggs before heating it, and the albumen should be employed in the state of froth. It has always been very difficult to spread the albumen evenly on the plate of glass. The albuminous coating being dried, the glass plate is passed through a solution of aceto nitrate of silver, made with nitrate of silver 6 parts, acetic acid 12 do., distilled water 60 do. The plate is not immersed more than ten seconds in this solution, and then it is washed in distilled water. After this it is allowed to dry in a dark place for immediate use. As this preparation makes the plate of glass very sensitive, the coating of albumen should not be put on them for any length of time before they are used. In exposing the plate in a camera, it is useful to place a plate with a white ground behind the glass plate. The picture is brought out on the plate by dipping it in a bath of warm galic acid, to which is added a few drops of aceto nitrate of silver. The proofs may be fixed either with the bromide of potassium or with the hypo-sulphite of soda, and in order to prevent the albumen from peeling off, which happens when the layer is too thick or made from old eggs, it may be coated with a slight layer of picture varnish. Honey is the grand substance for accelerating the production of the picture. The fluoric of ammonia may be employed along with honey, and not very well without it, as the albumen is then liable to crack and peel off. The addition of honey to the albumen gives graduated tints and very deep tones, and gives the image of an object illuminated by diffused light in the space of two or three seconds for a landscape, and from five to eight seconds for a portrait, employing a French double object glass for one fourth of the plate; for the large normal plate, forty or fifty seconds are required, and twenty-five to thirty seconds for a German object glass. The thicker the coat of albumen, the greater the acceleration. The albumen of ducks' eggs are not so good as hens', as the former is more liable to crack. The plate must always be well washed before it receives the gallic acid, but it must not be too much washed.

Steam Between Philadelphia and Liverpool.

A regular steamship line between Philadelphia and Liverpool is at last to be established. The first steamer, the "City of Glasgow," has been purchased, and it is announced will sail for Philadelphia in the first week of December next. The "City of Phila delphia," the second of the line, is to be built in Glasgow. The third, a vessel over two thousand tons, is about one-third completed in New York, and the fourth will be built in Philadelphia. The City of Glasgow steamer is now here, it is her last voyage to New York.

If a solution of nitrate of silver be added to a solution of common salt, or of muriate of ammonia, a chloride of silver will be produced. This precipitate, if left in the solution in which it was formed, soon assumes a dark color on exposure to the light; if however, heat be applied, the cloride, however, re-assumes its former white appearance.

Alcohol coagulates albumen; if iodine be added to alcohol, so as to form a tincture of iodine, the iodized alcohol does not coagulate albumen.

LITERARY NOTICES.

Sartain's Union Magazine—The number for November is very beautiful—it contains a handsome mezzotint engravings of "Porpora (the old maestro) and his Pupils," "The Miniature," and fifteen others well executed. It also contains twenty original articles of superior merit, from well-known authors. The numbers of this popular Magazine are for sale by that well-known publishing house, Messrs. Dewitt & Davenport, Tribune Buildings.

"The Scalpel," for November, contains a sterling variety of matter; among the leading papers are articles upon Domestic Architecture, its influence on the mind and body; Medical Sheep Shearing, The Causes of Cancer in the Womb, Difficulty in the Monthly Periods, Address of the Editor at the Tabernacle on Short Hours for Clerks, Pregnancy under Extraordinary Circumstances, Nervous Diseases—besides a rich plate of intellectual fun, under the head of "The Soda Powder Department," by the Editor. The Scalpel is issued regularly every quarter, at $1 per annum. Dr. E. H. Dixon, Editor: sold by Dewitt & Davenport, and Bedford & Co.

Shakspeare's Dramatic Works, Phillips, Sampson, & Co., publishers, Boston; Dewitt & Davenport, New York, Agents.—This number (26) contains King Henry VIII., embellished by a portrait of Queen Katherine. We have, on several occasions, spoken in high terms of this edition of Shakspeare's Works; a better specimen of printing has never appeared in America.

F. Gleason' Boston, has just issued a paper called the "Jenny Lind," printed on satin paper, in golden letters. It looks very beautiful.

Nature Defended and the Abuses of Custom Exposed—beingan argument advocating the claims of Female Midwifery, by Geo. W. Skinner, M. D., of Newburyport, Mass. This is a little pamphlet of 63 pages, the design of which is apparent. It contains many plausible arguments against the employment of "male midwifery," which are worthy of attention.

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SIXTH VOLUME OF THE
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The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the Sixth Volume of this valuable journal, commenced on the 21st of September last. The character of the Scientific American is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

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10 " 12 " $15 | 20 " 12 " $28

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Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.

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